- Please replace the paragraph beginning on **page 7, line 1** with the following:

Video imaging of the sample is performed by shining white light on the sample. The white light is transmitted via fibers 26. High quality imaging optics are employed to provide the ability to visually inspect the sample area and to obtain Raman chemical images. Collection lenses 22 focuses an image of the sample on the image collection bundle 18. The coherent image collection bundle 18 independently captures white light and Raman scattered photons from the sample surface. The Raman chemical imaging fiberscope provides remote real-time video imaging of the sample when the white light is directed through the image collection bundle 18 to a video CCD. Live video capability assists in the insertion of the fiberscope and allows visual inspection of the sample area in preparation for spectroscopic analysis. White light for video imaging can be produced by a high power (300 W) Xe lamp.

In the Claims: (Marked-up copies of changes attached hereto in Appendix B)

- Please delete claim 1

- Please re-write claim 2 as follows:

2. (Amended) A chemical imaging fiberscope for the collection of a chemical image derived from the Raman spectra reflected from a sample comprising:
one or more laser illumination fibers for transmitting laser light of a specific laser excitation wavelength from a first source to said sample;
a coherent fiber bundle capable of transmitting a clear image of said sample based on light scattered, reflected or emitted from said sample;
a spectral filter positioned between said one or more laser illumination fibers and said sample for transmitting said laser light of a specific laser excitation wavelength and rejecting light of other wavelengths; and
a spectral filter positioned between said sample and said coherent fiber bundle for transmitting images comprising wavelengths of light other than said specific laser excitation wavelength.

- Please re-write claim 4 as follows:

4. (Amended) The chemical imaging fiberscope of claim 1 further comprising one or more lenses positioned between said sample and said coherent fiber bundle for focusing said image on said coherent fiber bundle.

- Please re-write claim 8 as follows:

8. (Amended) The fiberscope assembly of claim 1 wherein said laser spectral filter is spatially patterned into a first portion for filtering said laser light and a second, transparent portion for transmitting light scattered, reflected or emitted by said sample to said coherent fiber bundle.

- Please delete claim ~~11~~.
- Please re-write claim 13 as follows:

13. (Amended) The chemical imaging fiberscope of claim 12 further comprising one or more lenses positioned between said sample and said coherent fiber bundle.

- Please re-write claim 17 as follows:

17. (Amended) The fiberscope assembly of claim 10 wherein said laser spectral filter is spatially patterned into a first portion for filtering said laser light and a second, transparent portion for transmitting light scattered, reflected or emitted by said sample to said coherent fiber bundle.

- Please re-write claim 18 as follows:

18. (Amended) A chemical imaging fiberscope for the collection of a chemical image derived from the Raman spectra reflected from a sample comprising:

one or more laser illumination fibers for transmitting laser light of a specific laser excitation wavelength from a first source to said sample;

a coherent fiber bundle capable of transmitting a clear image of said sample based on light scattered, reflected or emitted from said sample;

a spectral filter positioned between said one or more laser illumination fibers and said sample for transmitting said laser light of a specific laser excitation wavelength and rejecting light other wavelengths;

a spectral filter positioned between said sample and said coherent fiber bundle for transmitting wavelengths of light other than said specific laser excitation wavelength;

one or more lenses positioned between said sample and said coherent fiber bundle;

a spatial filter positioned between said sample and said coherent fiber bundle for controlling the angular field of view of said coherent fiber bundle;

a housing for enclosing said fiberscope; and

a window disposed at the distal end of said fiberscope.

- Please delete claim 19:
- Please re-write claim 20 as follows:

20. (Amended) The chemical imaging fiberscope of claim 18 wherein said spectral filters exhibit environmental insensitivity to temperature and humidity.

- Please re-write claim 21 as follows:

21. (Amended) A chemical imaging fiberscope for the collection of a chemical image derived from the Raman spectra reflected from a sample comprising:

a coherent fiber bundle capable of transmitting a clear image of said sample based on light scattered, reflected or emitted from said sample;

a spectral filter positioned between said sample and said coherent fiber bundle for transmitting wavelengths of light other than said laser light of a specific laser excitation wavelength;

one or more lenses positioned between said sample and said coherent fiber bundle;

a spatial filter positioned between said sample and said coherent fiber bundle for controlling the angular field of view of said coherent fiber bundle;

one or more white light illumination fibers for transmitting white light from a second light source to said sample;

a housing for enclosing said fiberscope; and

a window disposed at the distal end of said fiberscope.

• Please re-write claim 22 as follows:

22. (Amended) A chemical imaging fiberscope for the collection of a chemical image derived from the Raman spectra reflected from a sample comprising:

one or more laser illumination fibers for transmitting laser light of a specific laser excitation wavelength from a first source to said sample;

a coherent fiber bundle capable of transmitting a clear image of said sample based on scattered, reflected or emitted from said sample;

a spectral filter positioned between said one or more laser illumination fibers and said sample for transmitting said laser light of a specific laser excitation wavelength and rejecting light of other wavelengths;

one or more lenses positioned between said sample and said coherent fiber bundle;

a spatial filter positioned between said sample and said coherent fiber bundle for controlling the angular field of view of said coherent fiber bundle;

one or more white light illumination fibers for transmitting white light from a second light source to said sample;

a housing for enclosing said fiberscope; and

a window disposed at the distal end of said fiberscope.

• Please re-write claim 24 as follows:

24. (Amended) The system of claim 23 wherein said imaging spectrometer is of the liquid crystal tunable filter type.

• Please re-write claim 25 as follows:

25. (Amended) The system of claim 23 further comprising software and hardware for producing and displaying a Raman image of said sample.

• Please delete claim 26.

• Pleas re-write claim 27 as follows:

27. (Amended) The chemical imaging fiberscope of claim 10 further comprising a spatial filter positioned between said sample and said coherent fiber bundle for controlling the angular field of view of said coherent fiber bundle.

Please add claims 28-51

28. A chemical imaging fiberscope for imaging and collecting Raman spectra from a sample comprising:

one or more laser illumination fibers for transmitting laser light of a specific laser excitation wavelength from a first source to said sample;

a coherent fiber bundle;

a spectral filter positioned between said one or more laser illumination fibers and said sample for transmitting said laser light of a specific laser excitation wavelength and rejecting light of other wavelengths; and

a spectral filter positioned between said sample and said coherent fiber bundle for transmitting images comprising wavelengths of light other than said specific laser excitation wavelength;

wherein said coherent fiber bundle can be positioned and focused with respect to said sample using light collected by said coherent fiber bundle.

29. The chemical imaging fiberscope of claim 28 wherein said spectral filters exhibit environmental insensitivity to temperature and humidity.

30. The chemical imaging fiberscope of claim 28 further comprising one or more lenses positioned between said sample and said coherent fiber bundle for focusing said image on said coherent fiber bundle.

31. The chemical imaging fiberscope of claim 28 further comprising a housing for enclosing the fiberscope.

32. The chemical imaging fiberscope of claim 31 further comprising a window disposed at the distal end of said fiberscope.

33. The chemical imaging fiberscope of claim 32 wherein said window is composed of a material selected from a group comprising quartz, diamond and sapphire.

34. The fiberscope assembly of claim 28 wherein said laser spectral filter is spatially patterned into a first portion for filtering said laser light and a second, transparent portion for transmitting light scattered, reflected or emitted by said sample to said coherent fiber bundle.

35. The fiberscope assembly of claim 28 wherein said spectral filters are composed of a filter type selected from a group comprising dielectric, holographic and rugate spectral filters.

36. The chemical imaging fiberscope of claim 28 further comprising a plurality of white light illumination fibers for transmitting white light from a second source to said sample.

37. The chemical imaging fiberscope of claim 36 wherein said spectral filters exhibit environmental insensitivity to temperature and humidity.

38. The chemical imaging fiberscope of claim 37 further comprising one or more lenses positioned between said sample and said coherent fiber bundle.

39. The chemical imaging fiberscope of claim 36 further comprising a housing for enclosing the fiberscope.

40. The chemical imaging fiberscope of claim 39 further comprising a window disposed at the distal end of said fiberscope.

41. The chemical imaging fiberscope of claim 40 wherein said window is composed of a material selected from a group comprising quartz, diamond and sapphire.

42. The fiberscope assembly of claim 10 wherein said laser spectral filter is spatially patterned into a first portion for filtering said laser light and a second, transparent portion for transmitting light scattered, reflected or emitted by said sample to said coherent fiber bundle.

43. The chemical imaging fiberscope of claim 1 further comprising a spatial filter positioned between said sample and said coherent fiber bundle for controlling the angular field of view

of said collection fibers.

44. The chemical imaging fiberscope of claim 28 further comprising a spatial filter positioned between said sample and said collection fibers for controlling the angular field of view of said collection fibers.

45. A chemical imaging fiberscope of claim 28 further comprising:
a mount for holding the fiberscope distal end in proximity to said sample;
a link for directing the output of the fiberscope under white light illumination conditions to a live video camera;
a link for directing the output under laser illumination conditions to a Raman spectrometer;
a link for directing the output under laser illumination conditions to a Raman chemical imaging spectrometer and detector.

46. The system of claim 45 wherein said imaging spectrometer is of the liquid crystal tunable filter type.

47. The system of claim 45 further comprising software and hardware for producing and displaying a Raman image of said sample.

48. A chemical imaging fiberscope for imaging and collecting Raman spectra from a sample comprising:
one or more laser illumination fibers for transmitting laser light of a specific laser excitation wavelength from a first source to said sample;
a coherent fiber bundle;
a spectral filter positioned between said one or more laser illumination fibers and said sample for transmitting said laser light of a specific laser excitation wavelength and rejecting light of other wavelengths;
a spectral filter positioned between said sample and said coherent fiber bundle for transmitting images comprising wavelengths of light other than said specific laser excitation wavelength;
one or more lenses positioned between said sample and said coherent fiber bundle;

a spatial filter positioned between said sample and said coherent fiber bundle for controlling the angular field of view of said coherent fiber bundle;

a housing for enclosing the fiberscope; and

a window disposed at the distal end of said fiberscope;

wherein said coherent fiber bundle can be positioned and focused with respect to said sample using light collected by said coherent fiber bundle.

49. The chemical imaging fiberscope of claim 48 wherein said spectral filters exhibit environmental insensitivity to temperature and humidity.

50. A chemical imaging fiberscope for imaging and collecting Raman spectra from a sample comprising:

a coherent fiber bundle, for receiving light scattered, reflected or emitted by said sample;

a spectral filter positioned between said sample and said coherent fiber bundle for transmitting wavelengths of light other than said laser light of a specific laser excitation wavelength;

one or more lenses positioned between said sample and said coherent fiber bundle;

a spatial filter positioned between said sample and said coherent fiber bundle for controlling the angular field of view of said collection fibers;

one or more white light illumination fibers for transmitting white light from a second light source to said sample;

a housing for enclosing said fiberscope; and

a window disposed at the distal end of said fiberscope;

wherein said coherent fiber bundle can be positioned and focused with respect to said sample using light collected by said coherent fiber bundle.

51. A chemical imaging fiberscope for imaging and collecting Raman spectra from a sample comprising:

one or more laser illumination fibers for transmitting laser light of a specific laser excitation wavelength from a first source to said sample;

a coherent fiber bundle for receiving light scattered, reflected or emitted by said sample;

a spectral filter positioned between said one or more laser illumination fibers and said